selectively introducing a metal element which promotes crystallization of silicon to a region [before or after formation] of the amorphous silicon film; and

crystallizing and growing the amorphous silicon film using the metal element by heating, in a direction approximately parallel to a surface of the substrate from the region;

wherein [crystal growth is performed in a direction approximately parallel to a surface of the substrate from the region, and] in another region where no metal element was selectively introduced the silicon film remain amorphous.

4. (Twice Amended) A method for fabricating a semiconductor device used for an active matrix type electro-optical display, comprising:

forming [a substantially] an amorphous silicon film on a substrate;

selectively introducing a metal element which promotes crystallization of silicon to [before or after formation] a region of the amorphous silicon film; and

crystallizing and growing the amorphous silicon film into polycrystalline silicon from [a] the region [in which the metal element has been selectively introduced], in a direction approximately parallel to a surface of the substrate by heating;

wherein in another region where no metal element was selectively introduced the silicon film remains amorphous, and

wherein thin film transistors are formed on the region to approximately parallel a carrier moving direction within the thin film transistor with the

crystal growth direction of a crystalline silicon film and the other thin film transistors are formed on the another [other] region.

D2 Sub F1

5. (Amended) The method according to Claim 3, wherein the metal element comprises one of Ni, Fe, Co, Pd and Pt [has nickel].

6. (Amended) The method according to Claim 4, wherein the metal element comprises one of Ni, Fe, Co, Pd and Pt [has nickel].

20. (Twice Amended) A method for fabricating a semiconductor device for an active matrix type electro-optical [liquid crystal] display having a peripheral driving circuit portion and a picture element portion, comprising the steps of:

D3

forming an amorphous silicon film on a substrate;

preparing a metal element which promotes crystallization before or after formation of the silicon film and introducing said metal element into an introducing region of the silicon film; and

crystallizing the silicon film using the metal element,

wherein the silicon film is crystal-grown from the introducing region in a direction parallel to the substrate to obtain a crystal growth region and another region where the silicon remains amorphous;

wherein at least one thin film transistor is provided in both the crystal growth region and the another region, and wherein said crystal growth region comprises the peripheral driving circuit portion and the another region comprises the picture [circuit] element portion.

21. (Amended) A method for fabricating a semiconductor device for an active matrix type electro-optical [liquid crystal] display having a peripheral driving circuit portion and a picture element portion, comprising the steps of:

forming a silicon film having an amorphous structure on a substrate;

preparing a metal element which promotes crystallization before or after formation of the silicon film[, to introduce] and introducing the metal element into an introducing region of the silicon film; [and]

crystallizing the silicon film using the metal element,

D4

wherein the silicon film is crystal-grown from the introducing region in a crystal growth direction parallel to the substrate to obtain a crystal growth region and another region where [has] the silicon film [having the] remains amorphous,

[wherein the crystal growth region has at least one of thin film transistors provided as the peripheral driving circuit portion and the another region has at least another one of the thin film transistors provided as the picture circuit portion]

wherein at least one thin film transistor is provided in both the crystal growth region and the another region, and wherein said crystal growth region comprises the peripheral driving circuit portion and the another region comprises the picture element portion, and

wherein the crystal growth direction coincides with a carrier moving direction.

Please add claim 26 as follows:

D5 --26. The method of claim 15 wherein the concentration of the metal element is measured by secondary ion mass spectrometry.--

REMARKS

This amendment responds to the Official Action mailed April 26, 1996. The shortened statutory period of response is set to expire July 26, 1996. Accordingly, applicant respectfully submits that this response is being timely filed.

Claims 3-12 and 14-25 were pending. In this submission, claims 3, 4, 5, 6, 20 and 21 have been amended in order to more clearly define protection to which applicant is entitled. New claim 26 is submitted for examination on the merits. Accordingly, claims 3-12 and 14-26 are currently pending in the present application and, for the reasons set forth below, are believed to be in condition for allowance.

PRIOR ART REJECTIONS

The Official Action rejects claims 3-8, 11-12 and 14-25 as obvious over Japanese Patent No. 2-140915 to Oka in view of U.S. Patent No. 5,147,826 to Liu et al. Oka is cited as disclosing a selectively forming a Ni layer in a seed region outside of the regions slated to become TFT active regions and thermally crystallizing the amorphous silicon where the grain nuclei originally form in the seed regions and proceed to the substrate surface. However, Oka